FIG.1

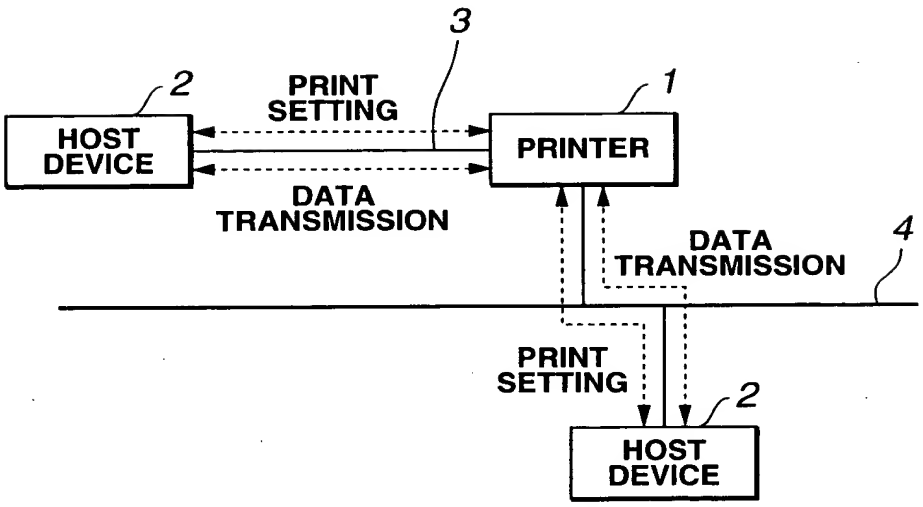

3
2
PRINT
SETTING
1
HOST
DEVICE
PRINTER
DATA
TRANSMISSION
DATA
TRANSMISSION
4
PRINT
SETTING
2
HOST
DEVICE

FIG.2

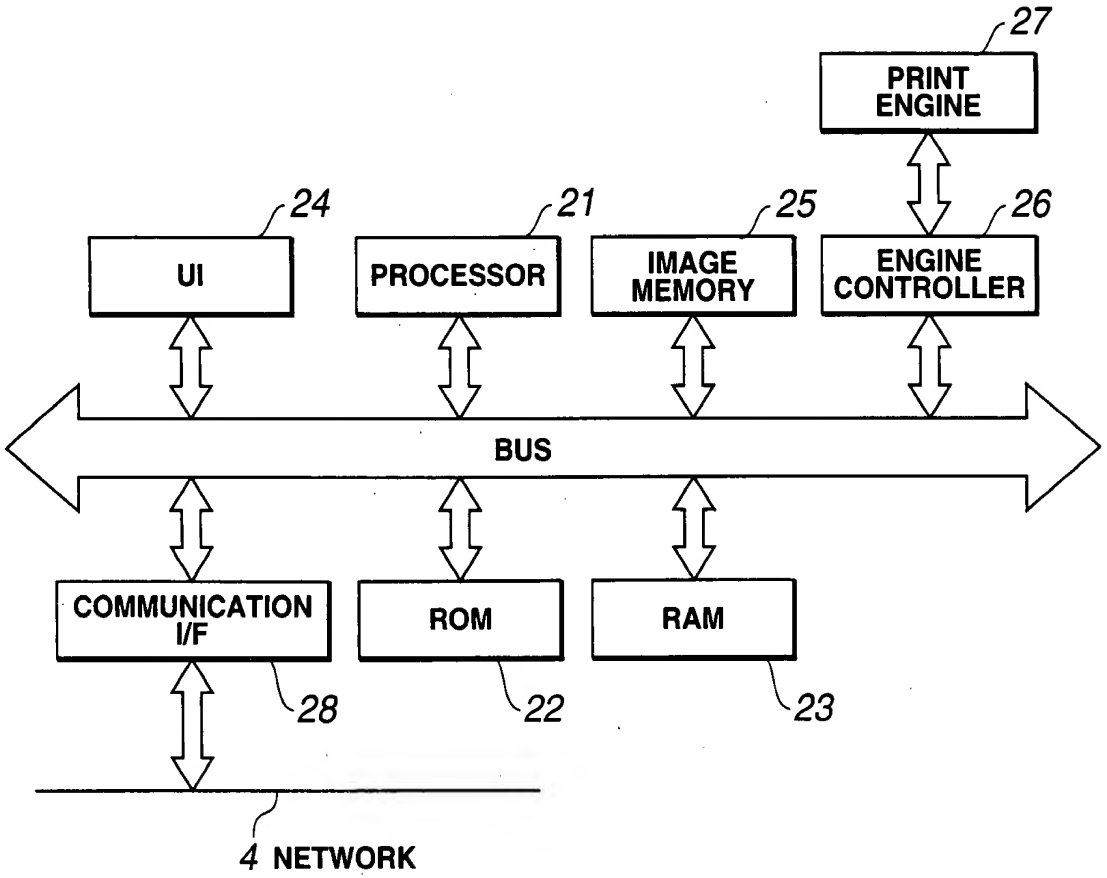

27
PRINT ENGINE
24
21
25
26
UI
PROCESSOR
IMAGE MEMORY
ENGINE CONTROLLER
BUS
COMMUNICATION I/F
ROM
RAM
28
22
23
4 NETWORK

FIG.3

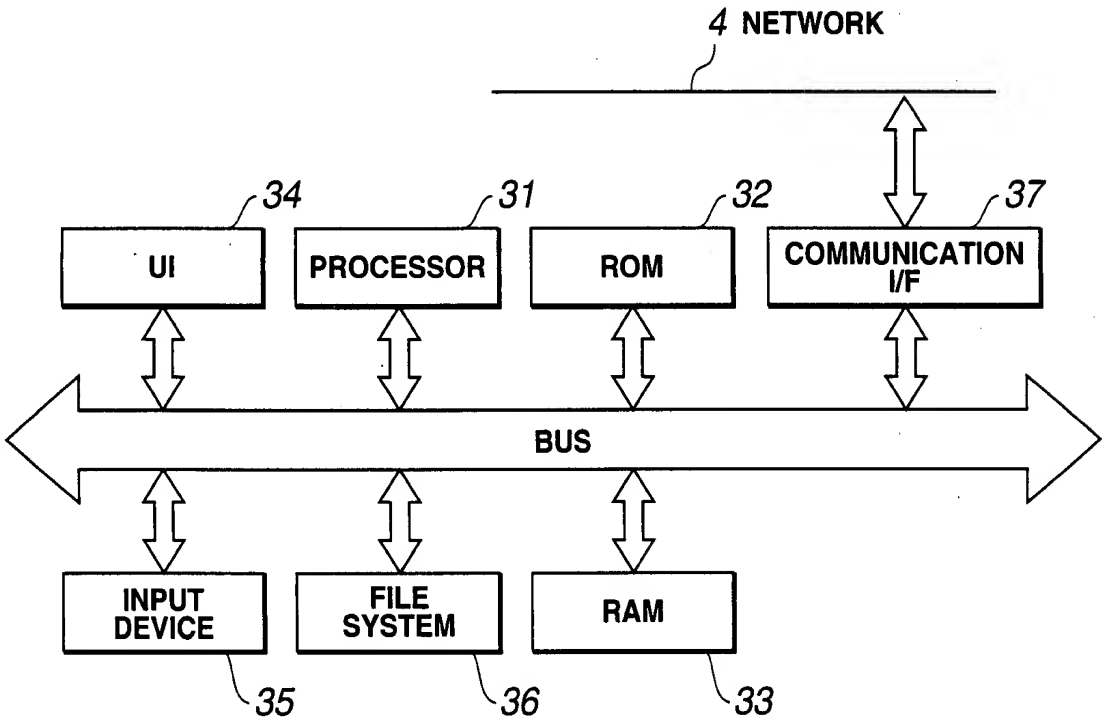


FIG.4A

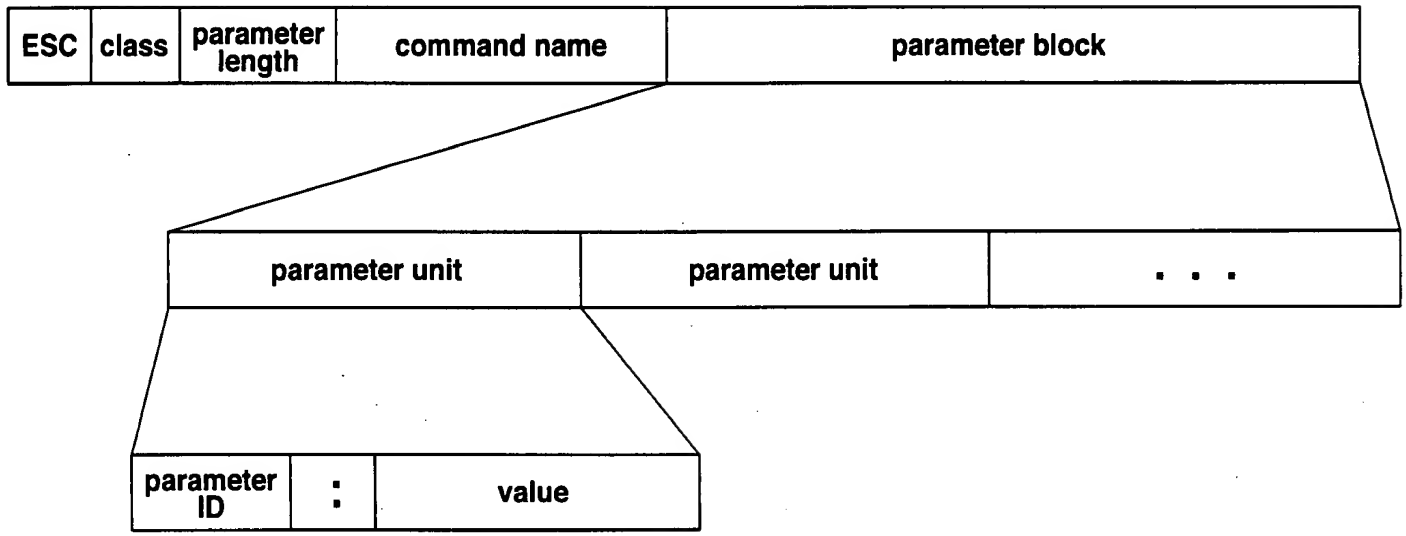

ESC
class
parameter length
command name
parameter block
parameter unit
parameter unit
. . .
parameter ID
:
value

FIG.4B

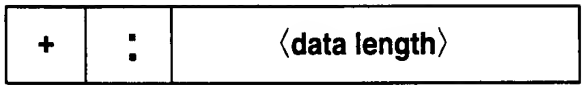

+
:
⟨data length⟩

FIG.5

[m: qlty] set printing quality — host –〉 printer

param. ID	value length	contents

M 2 media quality (media)

0	Plain Paper
1	Fine Paper
2	Super Fine Paper
3	Transparency
4	Glossy Film
5	Glossy Paper
6	Back Print Film

Q 1 quality (quality)

lowest picture quality ⟷ highest picture quality

0 ——— 15

P 6 color management for photograph (cmpht)
T 6 color management for text and graph (cmtxt)

Br	Cn	St	R	G	B

Br : Brightness
Cn : Contrast
St : Saturation
R : Red
G : Green
B : Blue

B 1 black and white printing (bwprt)

0	color printing
1	black and white printing

FIG.6

W	1	micro weave (mcrwev)

0	microwave off
1	standard microwave
2-265	expansion microwave

D	1	printing direction control (directl)

0	two-way printing
1	one-way printing

H	1	halftone (hftone)

0	dither (high speed)
1	error deffusion (high picture quality)

Z	1	dot size (dotsz)
H	2	horizontal resolution (hres)
V	2	vertical resolution (vres)
L	2	ID of user defined LUT (lut-id)

FIG.7

[m: slut] set user defined LUT — host → printer

param. ID	value length	contents
I	2	ID (id)
+	4	data length (dtlen)

FIG.8

[p: inqa] Inquire page availability **host –〉 printer**

param. ID	value length	contents
D	2	denominator (denomi)

FIG.9

[p: rpla] reply page availability — host 〈– printer

param. ID	value length	contents
D	2	denominator (denomi)
W	4	maximum width (width)
H	4	maximum height (height)
T	4	minimum top margin (tmrgin)
L	4	left margin (lmrgin)
R	4	minimum right margin (rmrgin)
B	4	minimum bottom margin (bmrgin)

FIG.10

[p: make] make page — host –〉 printer

param. ID	value length	contents
D	2	denominator (denomi)
W	4	width (width)
H	4	height (height)
T	4	top margin (tmrgin)
A	1	arrangement
H	2	horizontal division (hdiv)
V	2	vertical division (hdiv)
X	1	horizontal padding ratio (hpadd)
Y	1	vertical padding ration (vpadd)

0	automatic arrangement
1	individual arrangement
2	perpendicular serial arrangement

FIG.11

[p: fini] page finished **host 〈– printer**

param. ID	value length	contents
S	2	Status (status)

0	normal termination
1	abnormal termination
2	suspension due to [p:term]
3	reception of [p:term] after completion of processing

FIG.12

[o: req#] request object numbers — host → printer

param. ID	value length	contents
N	2	number of object numbers (nobj)

FIG.13

[p: endp] end of page — host –〉 printer

param. ID	value length	contents
S	1	eject (eject)

0	no paper feed after completion of printing
1	paper feed after completion of printing

FIG.14

[p: term] terminate page — host –〉 printer

param. ID	value length	contents
E	1	eject (eject)

0	no paper feed after suspension
1	paper feed after suspension

FIG.15

[o:iss#] issue object numbers **host 〈– printer**

param. ID	value length	contents
N	2	number of object numbers (nobj#)
#	2	object number (obj#)

FIG.16

[o:mkim] make image object — host –〉 printer

param. ID	value length	contents
#	2	object number (obj#)
D	2	denominator (denomi)
X	4	horizontal position (xpos)
Y	4	vertical position (ypos)
W	4	printing area width (width)
H	4	printing area height (height)
R	1	rotate (rotate)

0	no rotation
1	90 degree in the clockwise direction
2	180 degrees
3	90 degrees in the counterclockwise direction
4	no rotation or 90 degrees in the clockwise direction
5	no rotation or 90 degrees in the counterclockwise direction

F	1	aspect fitting (aspfit)

0	fitting of image data
1	fitting of object deveopmental area
2	fitting of both image data and object developmental area

FIG.17

A **2** **alignment (align)**

upper bytes: vertical arrangement

0	arrange upper end
1	arrange center portion
2	arrange lower end

lower bytes: horizontal arrangement

0	arrange left end
1	arrange center portion
2	arrange right end

Q **1** **quick decoding (quick)**

0	no high-speed development
1	high-speed development

I **1** **intent (intent)**

0	photograph
1	text/graph

Z **4** **size of image data (dtsize)**

FIG.18

P 2 photo creation (photor)

0	no application of APF
1	application of APF
2	application of simplified APF

lower bytes : APF applicable items

–	MH	MS	MG	S	D	T

T : tone (0: standard, 1: contrast, 2: sepia color)
D : correction for digital camera
S : sharpness (0: off, 1: on)
MG : memory color correction/green (0: off, 1: on)
MS : memory color correction/sky (0: off, 1: on)
MH : memory color correction/flesh color (0: off, 1: on)

S 16 statisical data (stsdat)

T 12 trimming guide (trimgd)

OH	OV	TH	TV
L	W		

OH : horizontal offset
OV : vertical offset
TH : horizontal trimming (with codes)
TV : vertical trimming (with codes)
L : length
W : width

B 6 border line

OH	OV	W

OH : thorizontal offset
OV : vertical offset
W : width

FIG.19

B	6	border line

OH	OV	W

OH : horizontal offset
OV : vertical offset
W : width

〉	9	style of caption 1 (style1)
)	9	style of caption 2 (style2)

offset	pos	pitch	size	R	G	B

–	–	–	–	I	A	P

〉	48	text string of caption 1 (str1)
)	48	text string of caption 2 (str2)

FIG.20

[o:rles] release object — host 〈– printer

param. ID	value length	contents
#	2	object number (obj#)
S	2	status (status)

0	normal termination
1	abnormal termination
2	termination due to suspension of page processing

FIG.21

[d:dreq] data request — host 〈– printer

param. ID	value length	contents
#	2	object number (obj#)
L	4	requested length (reqlen)

FIG.22

[o:dsnd] send data — host 〈– printer

param. ID	value length	contents
#	2	object number (obj#)
S	2	status (status)

0	normal
1	EOF
2	incorrect object number of data request

+	4	data length (dtlen)

FIG.23

[o:seek] seek — host 〈– printer

param. ID	value length	contents
#	2	object number (obj#)
0	2	origin (origin)
L	4	offset

0	top of data
1	current readout position
2	end of data

FIG.24

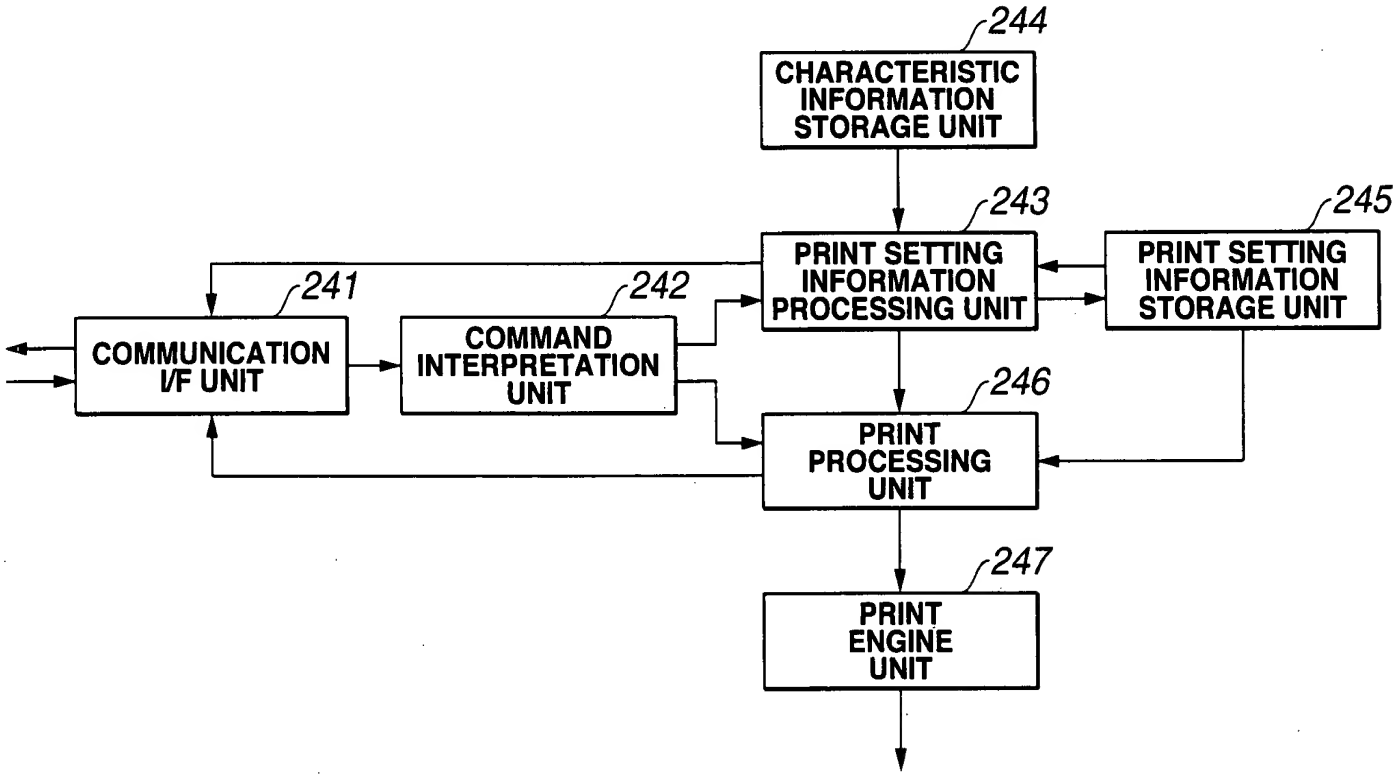

244
CHARACTERISTIC INFORMATION STORAGE UNIT
243
PRINT SETTING INFORMATION PROCESSING UNIT
245
PRINT SETTING INFORMATION STORAGE UNIT
241
COMMUNICATION I/F UNIT
242
COMMAND INTERPRETATION UNIT
246
PRINT PROCESSING UNIT
247
PRINT ENGINE UNIT

FIG.25

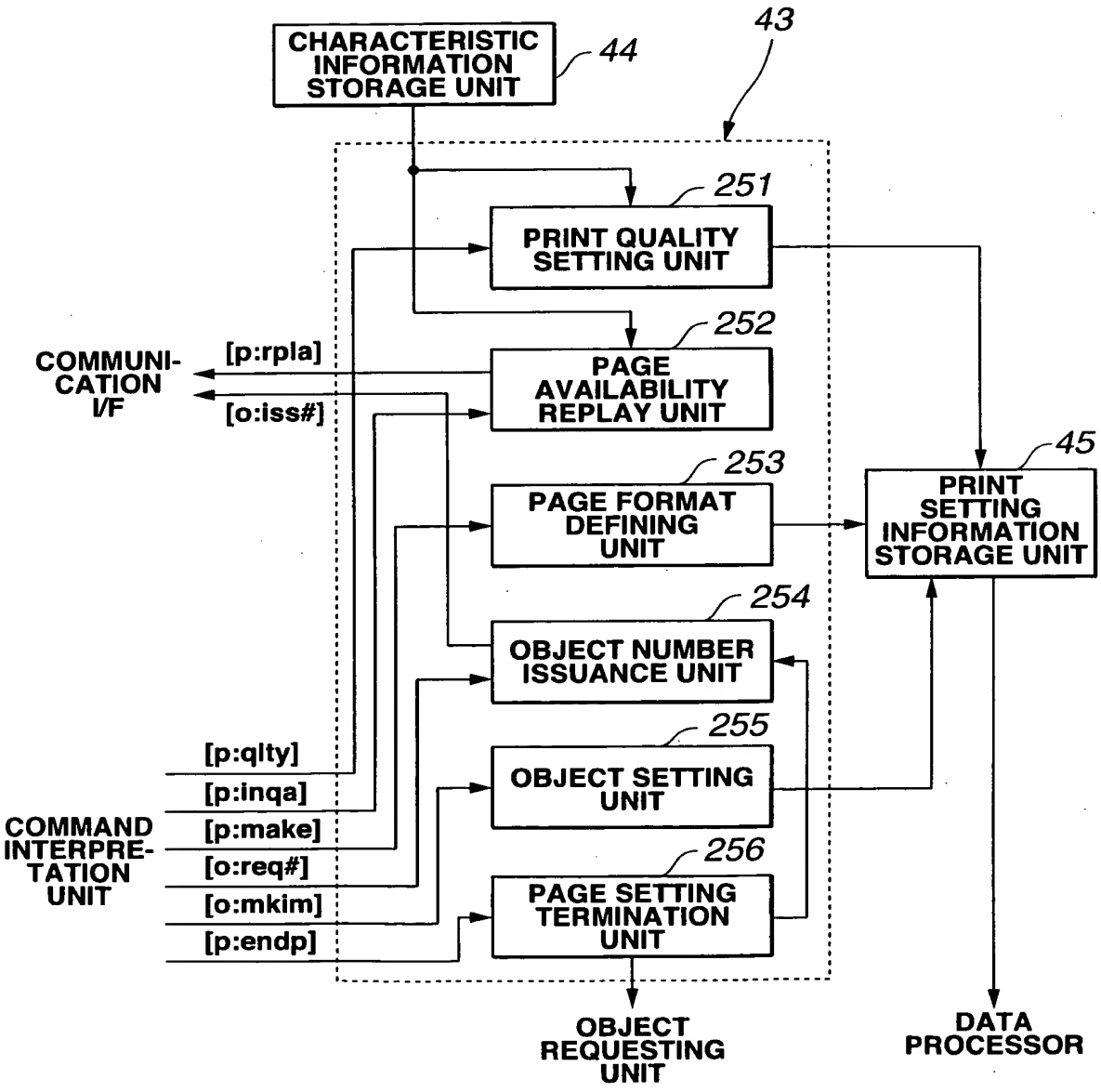

CHARACTERISTIC INFORMATION STORAGE UNIT
44
43
251
PRINT QUALITY SETTING UNIT
252
PAGE AVAILABILITY REPLAY UNIT
253
PAGE FORMAT DEFINING UNIT
254
OBJECT NUMBER ISSUANCE UNIT
255
OBJECT SETTING UNIT
256
PAGE SETTING TERMINATION UNIT
45
PRINT SETTING INFORMATION STORAGE UNIT
COMMUNI-CATION I/F
[p:rpla]
[o:iss#]
COMMAND INTERPRE-TATION UNIT
[p:qlty]
[p:inqa]
[p:make]
[o:req#]
[o:mkim]
[p:endp]
OBJECT REQUESTING UNIT
DATA PROCESSOR

FIG.26

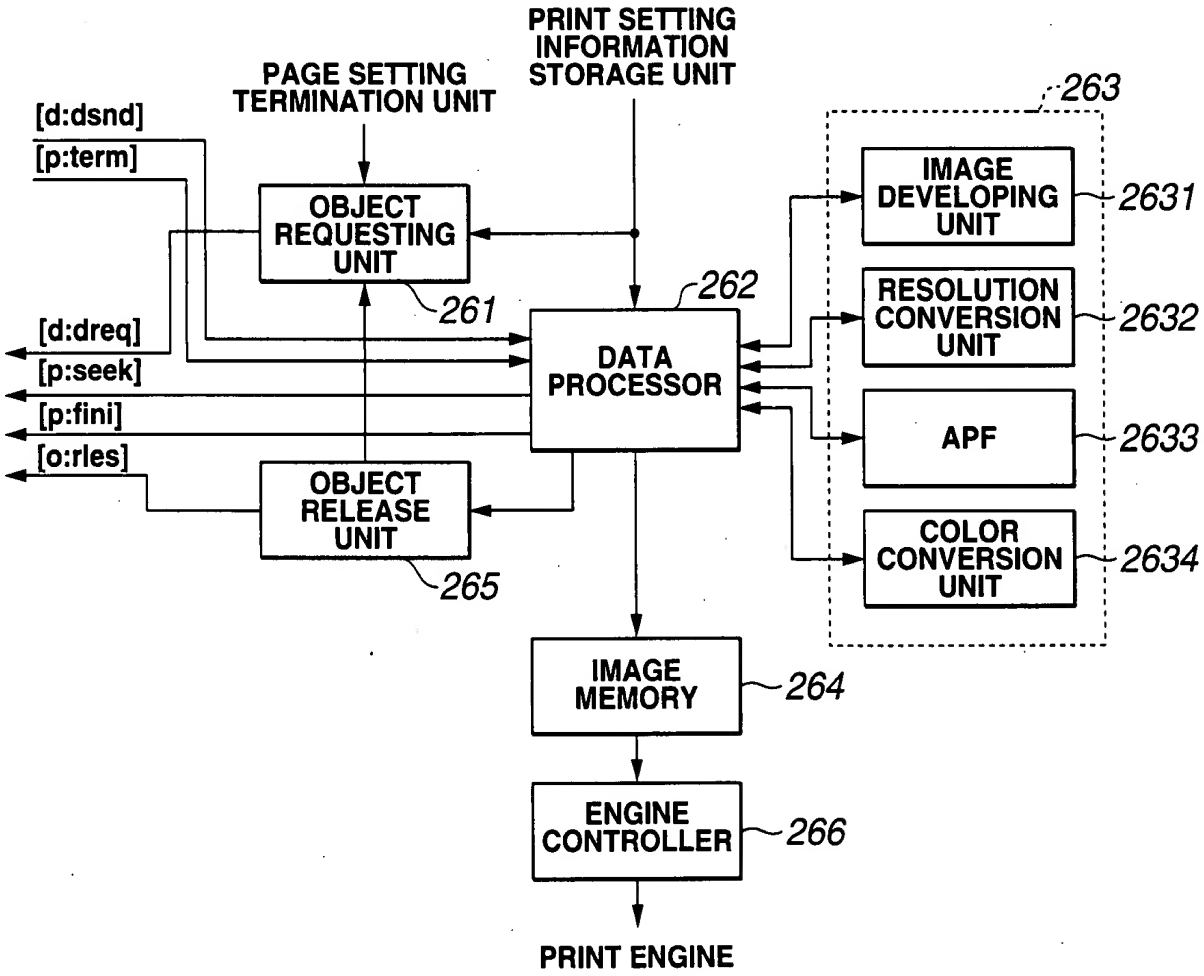

PRINT SETTING INFORMATION STORAGE UNIT
PAGE SETTING TERMINATION UNIT
[d:dsnd]
[p:term]
OBJECT REQUESTING UNIT
261
262
263
IMAGE DEVELOPING UNIT
2631
RESOLUTION CONVERSION UNIT
2632
[d:dreq]
[p:seek]
[p:fini]
[o:rles]
DATA PROCESSOR
APF
2633
COLOR CONVERSION UNIT
2634
OBJECT RELEASE UNIT
265
IMAGE MEMORY
264
ENGINE CONTROLLER
266
PRINT ENGINE

FIG.27

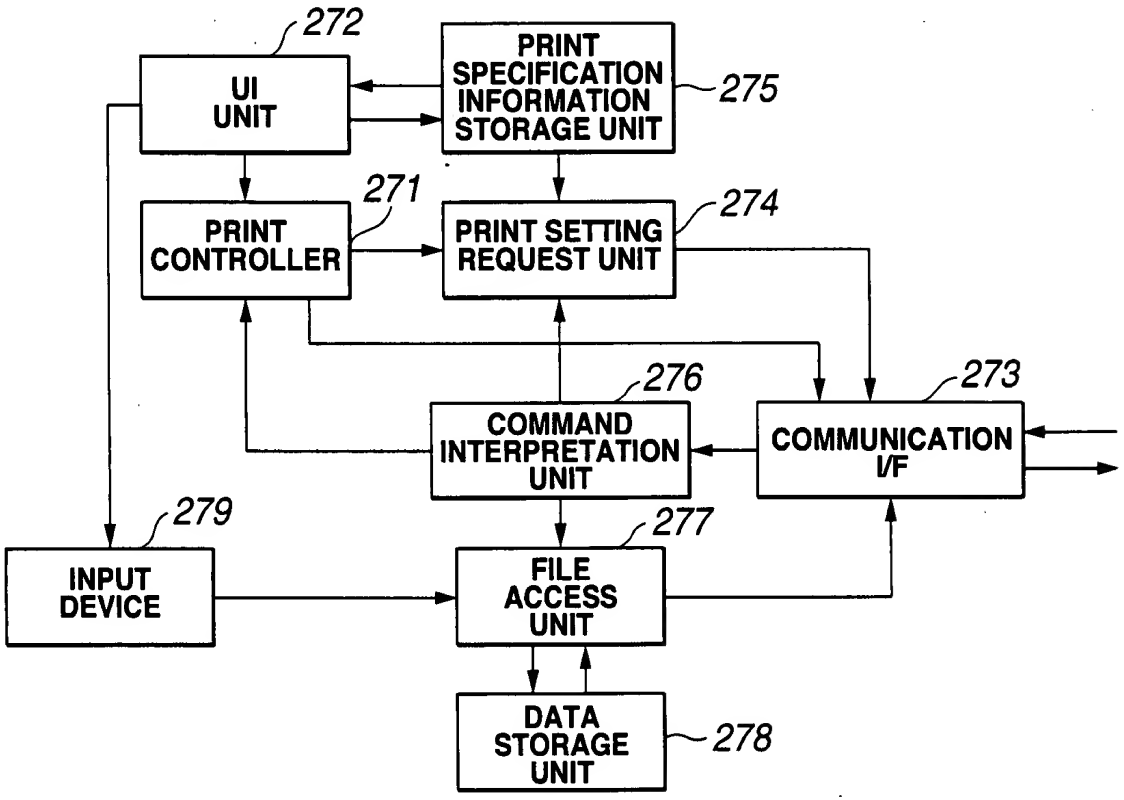

272
UI UNIT
PRINT SPECIFICATION INFORMATION STORAGE UNIT
275
271
PRINT CONTROLLER
PRINT SETTING REQUEST UNIT
274
276
273
COMMAND INTERPRETATION UNIT
COMMUNICATION I/F
279
277
INPUT DEVICE
FILE ACCESS UNIT
DATA STORAGE UNIT
278

FIG.28

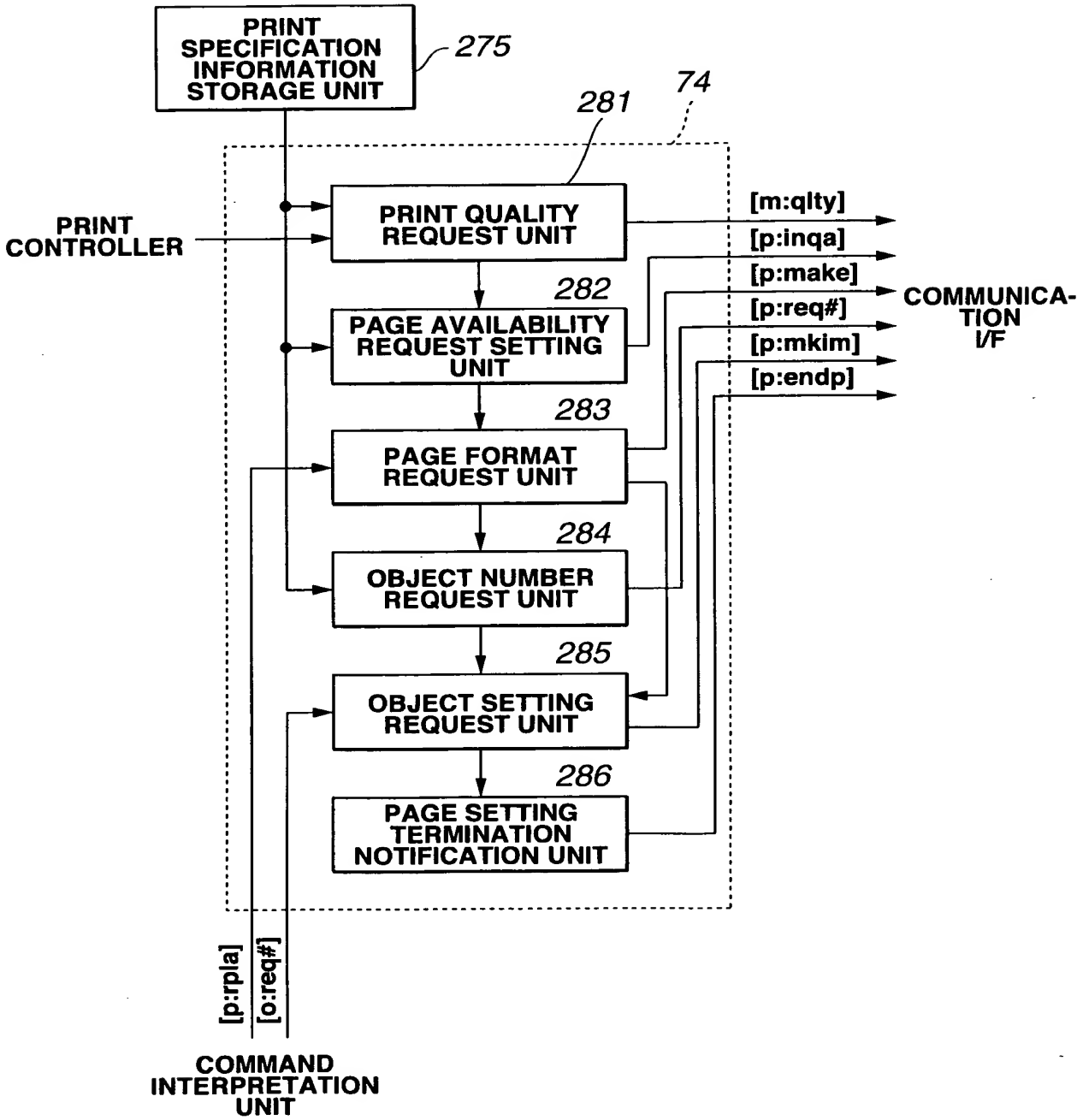

PRINT SPECIFICATION INFORMATION STORAGE UNIT
275
74
281
PRINT CONTROLLER
PRINT QUALITY REQUEST UNIT
282
PAGE AVAILABILITY REQUEST SETTING UNIT
283
PAGE FORMAT REQUEST UNIT
284
OBJECT NUMBER REQUEST UNIT
285
OBJECT SETTING REQUEST UNIT
286
PAGE SETTING TERMINATION NOTIFICATION UNIT
[m:qlty]
[p:inqa]
[p:make]
[p:req#]
[p:mkim]
[p:endp]
COMMUNICATION I/F
[p:rpla]
[o:req#]
COMMAND INTERPRETATION UNIT

FIG.29

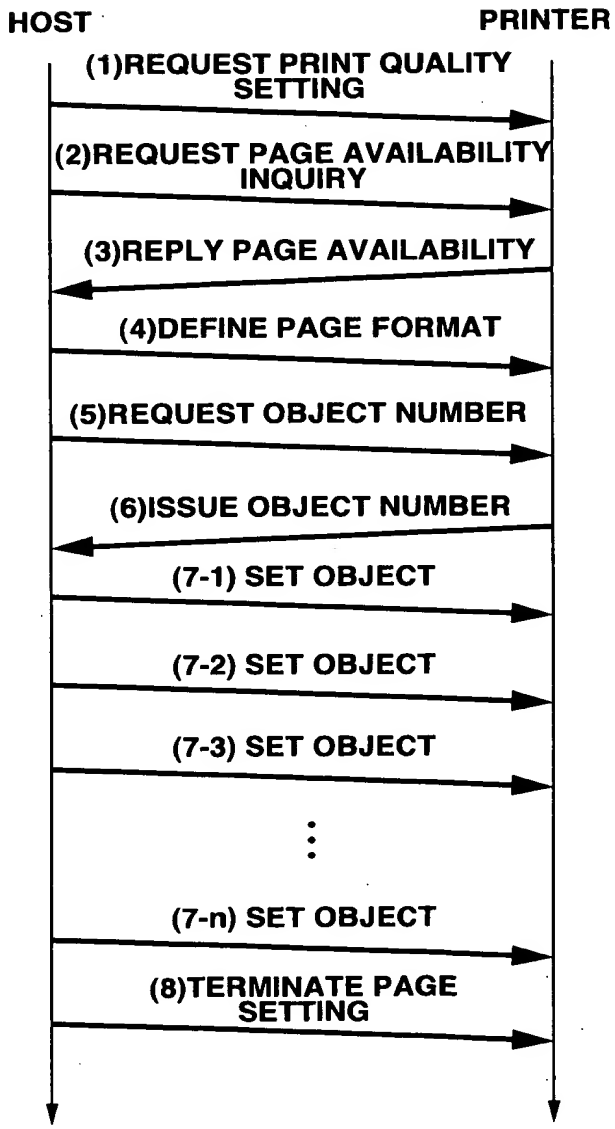

HOST
PRINTER
(1)REQUEST PRINT QUALITY SETTING
(2)REQUEST PAGE AVAILABILITY INQUIRY
(3)REPLY PAGE AVAILABILITY
(4)DEFINE PAGE FORMAT
(5)REQUEST OBJECT NUMBER
(6)ISSUE OBJECT NUMBER
(7-1) SET OBJECT
(7-2) SET OBJECT
(7-3) SET OBJECT
(7-n) SET OBJECT
(8)TERMINATE PAGE SETTING

FIG.30

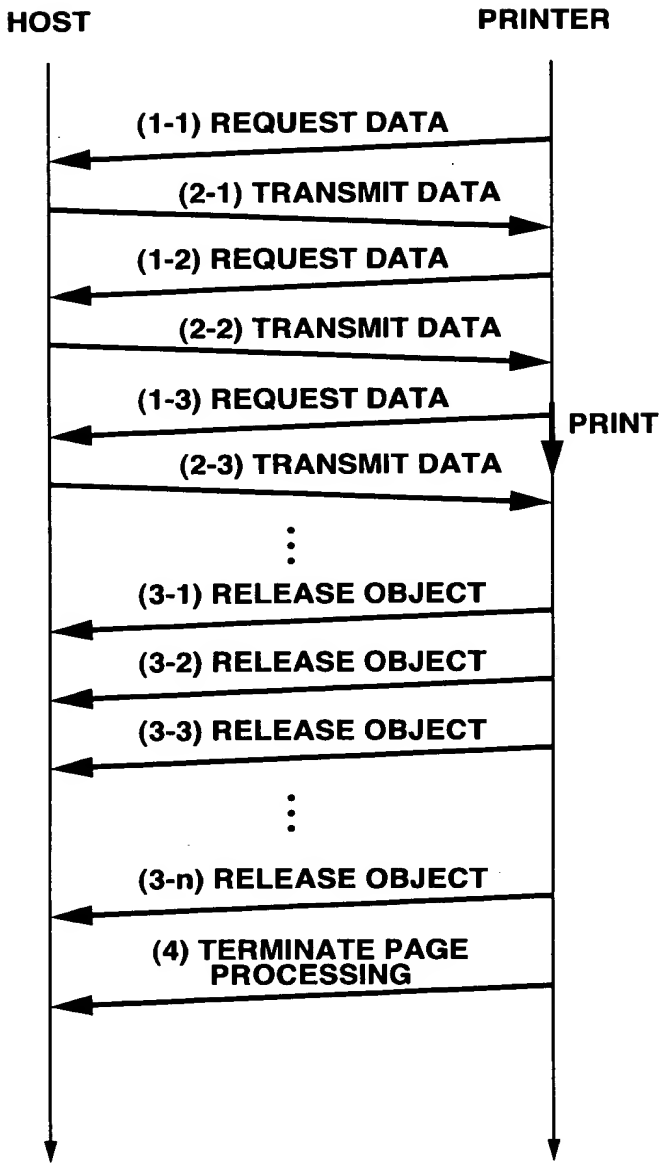

HOST
PRINTER
(1-1) REQUEST DATA
(2-1) TRANSMIT DATA
(1-2) REQUEST DATA
(2-2) TRANSMIT DATA
(1-3) REQUEST DATA
PRINT
(2-3) TRANSMIT DATA
(3-1) RELEASE OBJECT
(3-2) RELEASE OBJECT
(3-3) RELEASE OBJECT
(3-n) RELEASE OBJECT
(4) TERMINATE PAGE PROCESSING

FIG.31

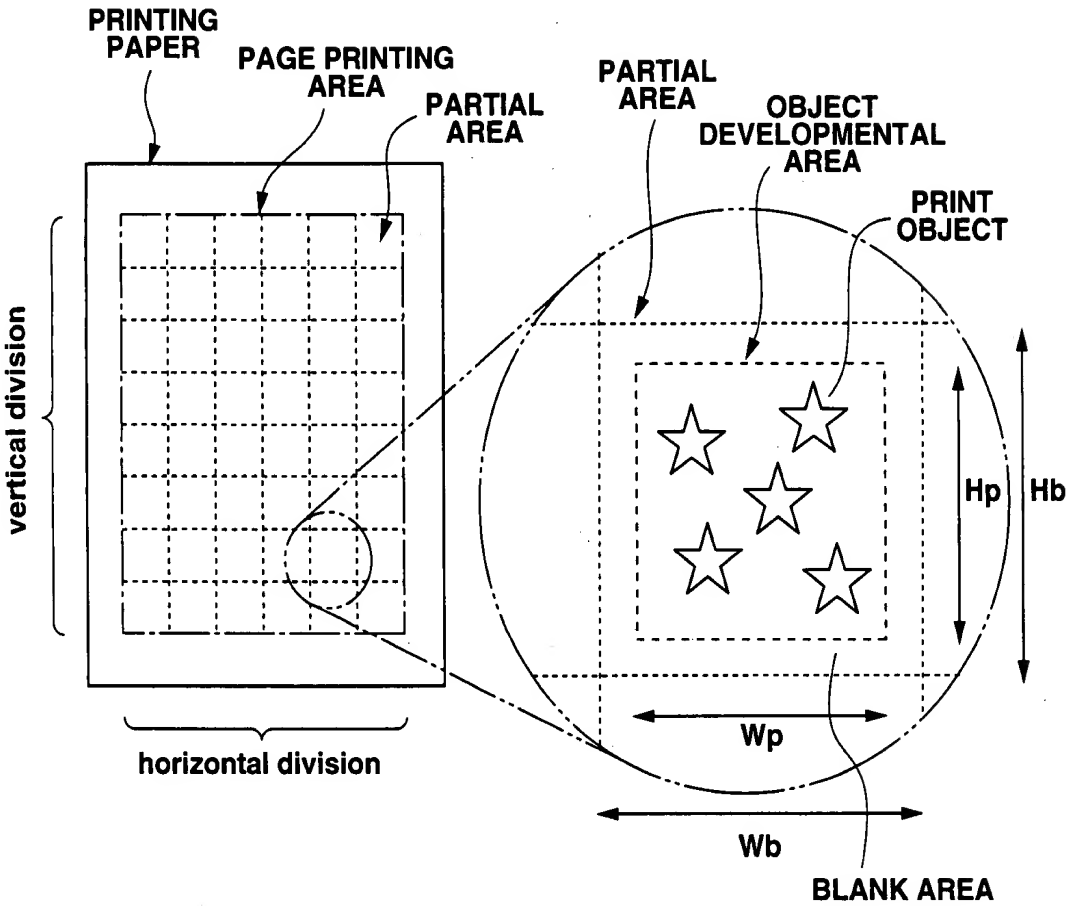

PRINTING PAPER
PAGE PRINTING AREA
PARTIAL AREA
PARTIAL AREA
OBJECT DEVELOPMENTAL AREA
PRINT OBJECT
vertical division
horizontal division
Hp
Hb
Wp
Wb
BLANK AREA

FIG.32

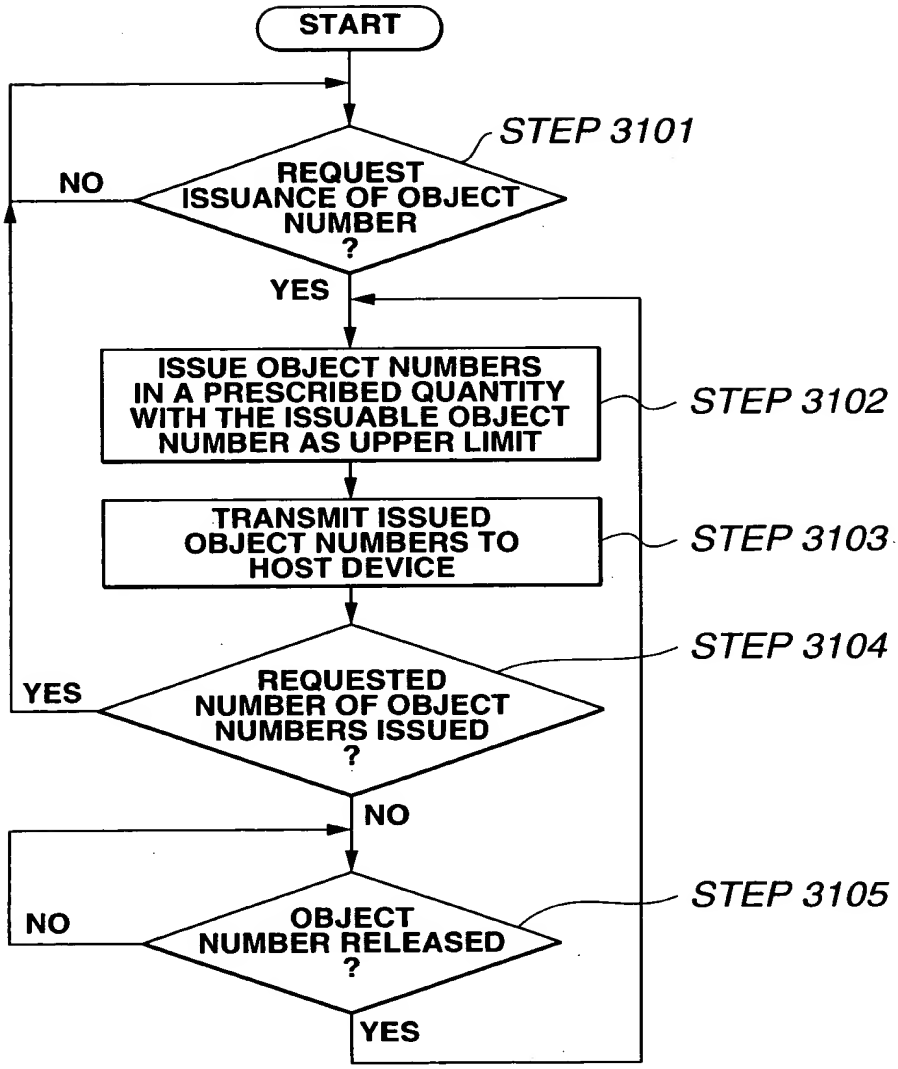
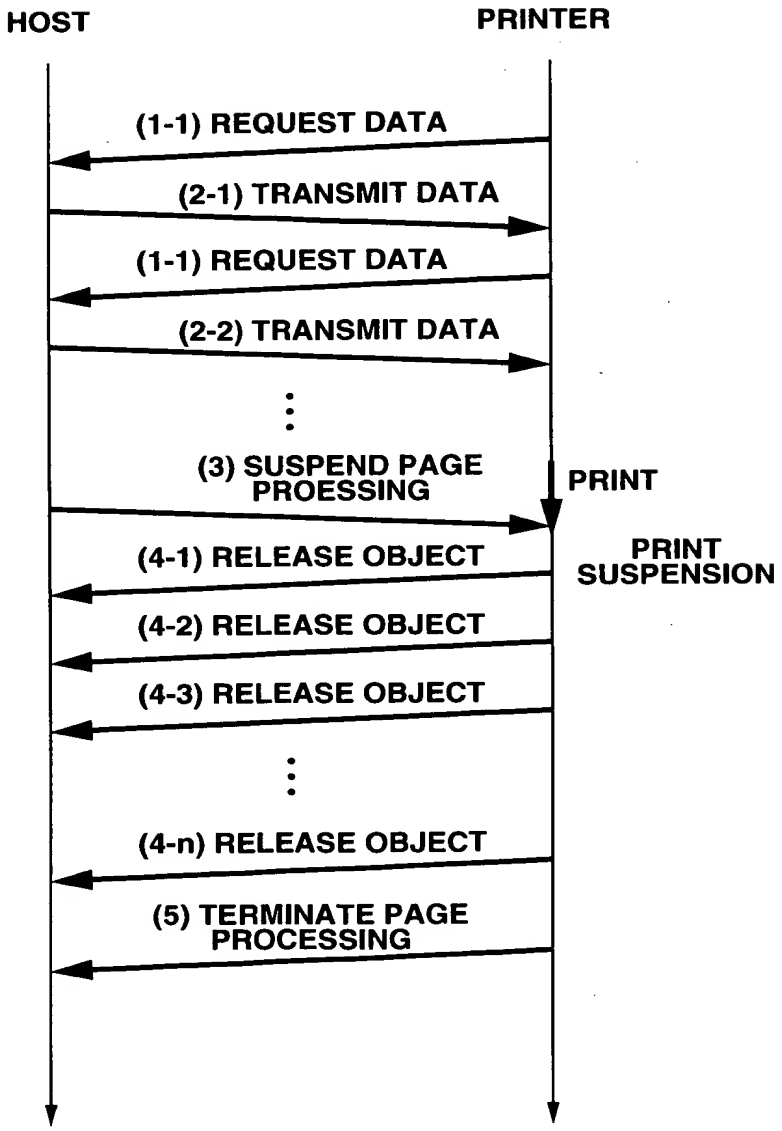

START
STEP 3101
REQUEST ISSUANCE OF OBJECT NUMBER ?
NO
YES
ISSUE OBJECT NUMBERS IN A PRESCRIBED QUANTITY WITH THE ISSUABLE OBJECT NUMBER AS UPPER LIMIT
STEP 3102
TRANSMIT ISSUED OBJECT NUMBERS TO HOST DEVICE
STEP 3103
STEP 3104
REQUESTED NUMBER OF OBJECT NUMBERS ISSUED ?
YES
NO
STEP 3105
OBJECT NUMBER RELEASED ?
NO
YES

FIG.33


HOST
PRINTER
(1-1) REQUEST DATA
(2-1) TRANSMIT DATA
(1-1) REQUEST DATA
(2-2) TRANSMIT DATA
(3) SUSPEND PAGE PROESSING
PRINT
PRINT SUSPENSION
(4-1) RELEASE OBJECT
(4-2) RELEASE OBJECT
(4-3) RELEASE OBJECT
(4-n) RELEASE OBJECT
(5) TERMINATE PAGE PROCESSING